

ABSTRACT

A method for oxidation of an object to be processed is provided wherein an oxide film can provide favorable film quality  
5 and a laminate structure of nitride film and oxide film can be obtained by a thermal oxidation of a nitride film.

In a method for oxidation of a surface of an object to be processed in a single processing container 8 which can contain a plurality of objects to be processed, at least a nitride film is  
10 exposed on said surface, and said oxidation is performed by mainly using active hydroxyl/oxygen species in a vacuum atmosphere, setting a processing pressure to 133 Pa or below, and setting a processing temperature to 400°C or above. Under these conditions, high interplanar uniformity is maintained and oxide  
15 films with favorable film quality are obtained by oxidizing nitride films on the surfaces of a plurality of objects to be processed.